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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,052	09/12/2000	Hideki Tengeiji	KYO.P0002	5834

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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/660,052	TENGEIJI ET AL.	
	Examiner	Art Unit	
	James M Hannett	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4* is/are rejected.

7)☒ Claim(s) *3 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7/8/2004 have been fully considered but they are not persuasive. The applicant argues that Horii does not teach the use of a shutter.

Horii teaches on Column 14, lines 8-25 and on Column 15, Lines 33-35 the use of capturing multiple images for four different pixel shifts and storing each image in memory. Therefore, it is inherent that the camera of Horii include a shutter to perform the different exposure operations. However, Horii is silent as to the type of shutter used and does not teach the use of a combination of both an electronic shutter and a mechanical shutter.

Yamada et al depicts in Figures 18 and 19 and teaches on Column 49, Lines 50-61 and Column 50, Lines 8-13 and Column 50, Lines 55-58 the use of using both a mechanical shutter and an electronic shutter. Yamada et al teaches that the mechanical shutter opens for the start of the first exposure and stays open until the second exposure is completed. Yamada et al further teaches that the electronic shutter is used to start and stop both the first and second exposures (see figure 19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6, 018,363 Horii in view USPN 6,577,341 Yamada et al.

2: As for Claim 1, Horii teaches in Figure 8 and on Column 13, Lines 21-45 and Column 14, Lines 8-32 an image sensing apparatus comprising: A solid-state image sensing device (106) to convert light from an object into an image signal; Horii teaches that different exposures are performed for the different pixel shifts. Therefore, it is inherent that the camera include a shutter provided between the object and the solid-state image sensing device, to expose the solid-state image sensing device to the light for a first exposure period and a second exposure period that directly follows the first exposure period. The first and second exposures are viewed by the examiner as the exposures that are performed for each pixel shift operation. Horii teaches on Column 14, lines 15-32 a processor to combine image signals converted for the first and the second exposure periods to generate a composite image signal. Horii teaches on Column 13, Lines 28-38 a shift mechanism (104), to shift a passage of the light incident to the solid-state image sensing device (106) in a predetermined direction with respect to the solid-state image sensing device. Horii teaches on Column 14, Lines 15-17 wherein the shift mechanism shifts the passage of light for a period from a moment in the first exposure period to another moment in the second exposure period.

Horii teaches the use of performing multiple exposures when the parallel plate has been rotated to four different positions. However, Horii does not teach that the different exposure are of the same exposure time.

Yamada teaches on Column 2, Lines 31-46 and Column 5, Lines 16-20 that it is advantageous when combining multiple exposures that are performed by shifting an image plane to set the exposure time for all the exposures equal to each other. Yamada teaches that this

method is advantageous because it improves the ability of the camera to create a composite image.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the exposure time for the different exposures in Horii equal to each other as taught by Yamada in order to improve the ability of the camera to create a composite image.

Horii teaches on Column 14, lines 8-25 and on Column 15, Lines 33-35 the use of capturing multiple images for four different pixel shifts and storing each image in memory. Therefore, it is inherent that the camera of Horii include a shutter to perform the different exposure operations. However, Horii is silent as to the type of shutter used and does not teach the use of a combination of both an electronic shutter and a mechanical shutter. Furthermore, Horii does not teach wherein the mechanical shutter is switched from a closed state to an open state to start the first exposure and the mechanical shutter is switched from the open state to the closed state to finish the second exposure.

Yamada et al further depicts in Figures 18 and 19 and teaches on Column 49, Lines 50-61 and Column 50, Lines 8-13 and Column 50, Lines 55-58 the use of using both a mechanical shutter and an electronic shutter. Yamada et al teaches that the mechanical shutter opens for the start of the first exposure and stays open until the second exposure is completed. Yamada et al further teaches that the electronic shutter is used to start and stop both the first and second exposures (see figure 19). Yamada et al teaches on Column 52, Lines 45-61 that this method is advantageous because it allows for the second exposure operation to be carried out after ending the transition operation of a mechanical shifting mechanism.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use both a mechanical shutter and an electronic shutter as taught by Yamada et al in the camera of Horii in order to allow the subsequent exposures to be carried out carried out after ending the transition operation of a mechanical shifting mechanism.

Horii in view of Yamada does not teach that the shutter is placed before the parallel-sided plate. Horii teaches in Figure 3, (a different embodiment) the use of including a shutter mechanism (3) directly after a diaphragm. However, is silent as to the location of the shutter apparatus when image shifting is performed by the parallel-sided plate.

Official notice is taken that it was well known in the art at the time the invention was made to place a shutter mechanism directly after the diaphragm in the invention of Horii in order to reduce the construction complexity of a camera.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place a shutter mechanism directly after the diaphragm in the invention of Horii in order to reduce the construction complexity of a camera and because it was common practice in the art at the time the invention was made to do so.

5: In regards to Claim 4, Horii teaches in Figure 8 and on Column 13, Lines 21-45 and Column 14, Lines 8-32 an image sensing apparatus comprising: A solid-state image sensing device (106) to convert light from an object into an image signal; Horii teaches that different exposures are performed for the different pixel shifts. Therefore, it is inherent that the camera include a shutter provided between the object and the solid-state image sensing device, to expose the solid-state image sensing device to the light for a first exposure period and a second exposure period that directly follows the first exposure period. The first and second exposures are viewed

by the examiner as the exposures that are performed for each pixel shift operation. Horii teaches on Column 14, lines 15-32 a processor to combine image signals converted for the first and the second exposure periods to generate a composite image signal. Horii teaches on Column 13, Lines 28-38 a shift mechanism (104), to shift a passage of the light incident to the solid-state image sensing device (106) in a predetermined direction with respect to the solid-state image sensing device. Horii teaches on Column 14, Lines 15-17 wherein the shift mechanism shifts the passage of light for a period from a moment in the first exposure period to another moment in the second exposure period.

Horii teaches the use of performing multiple exposures when the parallel plate has been rotated to four different positions. However, Horii does not teach that the different exposure are of the same exposure time.

Yamada teaches on Column 2, Lines 31-46 and Column 5, Lines 16-20 that it is advantageous when combining multiple exposures that are performed by shifting an image plane to set the exposure time for all the exposures equal to each other. Yamada teaches that this method is advantageous because it improves the ability of the camera to create a composite image.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the exposure time for the different exposures in Horii equal to each other as taught by Yamada in order to improve the ability of the camera to create a composite image.

Horii teaches on Column 14, lines 8-25 and on Column 15, Lines 33-35 the use of capturing multiple images for four different pixel shifts and storing each image in memory.

Therefore, it is inherent that the camera of Horii include a shutter to perform the different exposure operations. However, Horii is silent as to the type of shutter used and does not teach the use of a combination of both an electronic shutter and a mechanical shutter. Furthermore, Horii does not teach wherein the mechanical shutter is switched from a closed state to an open state to start the first exposure and the mechanical shutter is switched from the open state to the closed state to finish the second exposure.

Yamada et al further depicts in Figures 18 and 19 and teaches on Column 49, Lines 50-61 and Column 50, Lines 8-13 and Column 50, Lines 55-58 the use of using both a mechanical shutter and an electronic shutter. Yamada et al teaches that the mechanical shutter opens for the start of the first exposure and stays open until the second exposure is completed. Yamada et al further teaches that the electronic shutter is used to start and stop both the first and second exposures (see figure 19). Yamada et al teaches on Column 52, Lines 45-61 that this method is advantageous because it allows for the second exposure operation to be carried out after ending the transition operation of a mechanical shifting mechanism.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use both a mechanical shutter and an electronic shutter as taught by Yamada et al in the camera of Horii in order to allow the subsequent exposures to be carried out carried out after ending the transition operation of a mechanical shifting mechanism.

Allowable Subject Matter

Claims 3 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
January 3, 2005

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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